

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for determining the return path of a packet in a network, the network comprising a plurality of nodes and a plurality of links between the nodes, the method comprising acts of:

 sending a packet from a source node to a destination node, via an intermediate node;

 when the packet visits the intermediate node, storing information in the intermediate node for deriving a return path for the packet to the source node, wherein no information for deriving the return path is stored in the packet when the packet visits the intermediate node; and

 when the packet is being returned to the source node, using the stored information for deriving the return path,

 wherein, the information stored in the intermediate node comprises ~~an identifier of the packet and only one of an input port~~

~~through which the packet was received by the intermediate node and an output port through which the packet is returned to the source node by the intermediate node to be used for returning the packet~~
slot table that indicates which output port of the intermediate node is connected to which unique input port of the intermediate node in a given time slot and a time slot indicator indicating a time slot in which the packet is received by the intermediate node.

2. (Previously presented) The method for determining the return path of a packet in a network as claimed in claim 1, further comprising an act of storing information for deriving the return path in each node visited by the packet for deriving the return path, when sending the packet from the source node to the destination node.

3. (Cancelled)

4. (Currently amended) An integrated circuit, comprising a network, the network having a plurality of nodes and a plurality of links between the nodes, the network being arranged to determine a

return path of a packet when sending the packet from a source node to a destination node, via an intermediate node, wherein when the intermediate node is visited by the packet, the intermediate node stores information for deriving the return path for the packet to the source node, and wherein no information for deriving the return path is stored in the packet when the packet visits the intermediate node,

wherein the information comprises ~~an identifier of the packet only one of an input port through which the packet was received by the intermediate node and an output port through which the packet is returned to the source node by the intermediate node to be used for returning the packet~~ a slot table that indicates which output port of the intermediate node is connected to which unique input port of the intermediate node in a given time slot and a time slot indicator indicating a time slot in which the packet is received by the intermediate node.

5. (Previously presented) The integrated circuit as claimed in claim 4, wherein each node visited by the packet stores information for deriving the return path.

6. (Canceled)

7. (Previously presented) The method as claimed in claim 1, wherein the network is a packet-switched network.

8. (Previously presented) The method as claimed in claim 7, wherein the packet is sent from the source node to the destination node using destination routing.

9. (Previously presented) The integrated circuit as claimed in claim 4, wherein the network is a packet-switched network.

10. (Previously presented) The integrated circuit as claimed in claim 9, wherein the packet is sent from the source node to the destination node using destination routing.

11. (Previously presented) A method for determining a return path of a packet in a time-division multiplexing arbitration network, the method comprising acts of:

sending a packet from a source node to a destination node along a network path;

when the packet visits an intermediate node in the network path, storing a slot table in the intermediate node for deriving a return path for the packet from the intermediate node to the source node, wherein the slot table indicates which output port of the intermediate node is connected to which unique input port of the intermediate node in a given time slot, wherein no information for deriving the return path is stored in the packet when the packet visits the intermediate node other than a time slot indicator indicating a time slot in which the packet is received by the intermediate node; and

using the stored slot table in the intermediate node for deriving the return path for the packet from the intermediate node to the source node.

12-13. (Canceled)

14. (Previously presented) The method as claimed in claim 11, wherein the network is a packet-switched network.

15. (Previously presented) The method as claimed in claim 14, wherein the packet is sent from the source node to the destination node using destination routing.